UNSTABLE ACTORS, ALTERNATING CURRENTS: REIMAGINING BUREAUCRATIC KNOWLEDGE PRODUCTION IN THE TECHNOPOLITICS OF DEVELOPMENT

A Thesis

Presented to the Faculty of the Graduate School

of Cornell University

In Partial Fulfillment of the Requirements for the Degree of

Master of Science

by

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May 2019

ABSTRACT

Contemporary international development bureaucracies are constituted by and operate through diverse actors whose work requires sustained interaction with changing material landscapes and the changing subjectivities of partners, clients, and intended beneficiaries. Understanding the production of knowledge and technical expertise within these bureaucracies requires a dynamic, historically contingent, and relational conceptualization of bureaucracy itself. This paper is divided into two parts: Part I critically examines the divergent ways that bureaucracy is framed within scholarly literature on the technopolitics of development, and the corresponding conceptual openings and closures that these different framings of bureaucratic rationality give rise to. Part II examines how permeable spaces of bureaucratic interaction continually reshape development projects through auto-ethnographic analysis of an evolving multilateral electricity development program in sub-Saharan Africa. This paper contributes to scholarly understanding of the social relations that shape the cultivation of specific forms of technical expertise, and calls for critical scholarly attention to the porous and dynamic dimensions of knowledge production within development bureaucracies. By foregrounding the relational, historically contingent forms of development bureaucracy, I hope to draw attention to its generative inconsistencies and reconfigurations that may, as yet, find unexpected uses.

BIOGRAPHICAL SKETCH

Kendra's research examines renewable and smart energy development in the Middle East, focusing on transnational engineering and design practices and the production of urban space. Her work explores how communities experience and shape processes of ecological and infrastructural change, with critical attention to the social and geographical construction of climate, environmental, and economic vulnerability. Prior to coming to Cornell, Kendra worked as a federal evaluator on renewable energy, grid development, and urban infrastructure projects across the Middle East, Africa, and Southeast Asia. Originally from California, Kendra earned dual Bachelor of Arts degrees in Development Studies and Comparative Literature from the University of California, Berkeley. While there, she completed an honors thesis entitled "The Promise, Possibility, and Problems with Identity Politics and Articulations of Ethnic Citizenship in Post-1989 Hungary: The Case of the Roma," and graduated with highest honors in Development Studies and high distinction in general scholarship.

ACKNOWLEDGEMENTS

I am eternally grateful for the guidance and mentorship of Lori Leonard, Jenny Goldstein, Fouad Makki, and Lucinda Ramberg. Their criticism and encouragement have contributed in innumerable ways to this piece and to my growth as a scholar. This piece examines a particular field of development intervention that I was privileged to participate in for many years; I am indebted to the many partners and friends that I worked alongside, and I am exceedingly grateful for all that they continue to teach me. The views and opinions expressed in this piece are entirely my own and should not be considered in any way representative of the institutions or individuals mentioned.

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PART I: THE PERMUTATIONS AND POSSIBILTIES OF BUREAUCRATIC THOUGHT

I. Introduction

In an Opinion-Editorial for the Washington, DC-based publication, *The Hill*, in May 2018, the Chairman and CEO of the Bechtel Corporation contends that "there is something the United States can do right now to increase the global competitiveness of U.S. firms: Put the U.S. Export-Import Bank (EXIM) back into the business of supporting American jobs" (Weatherhead, 2018). EXIM, the U.S. Government's export credit agency that orchestrates financing for the international sale of U.S.-manufactured goods and services, was rendered partially inoperative in 2015 when Congress temporarily allowed its charter to lapse, and then left its newly nominated board members unconfirmed. Without a quorum of board members, EXIM is unable to finance any transactions over $10 million, leaving high-value clients like the Bechtel Corporation, the Boeing Company, and General Electric without access to competitive export finance. Linking the lack of EXIM financing to "lost American jobs and "going out of business" signs on main streets across the country," Bechtel's Chairman goes on to portray EXIM as "a key tool for projecting U.S. 'soft power' abroad" and one of the key mechanisms for delivering "the U.S. commitment to responsible, sustainable development and improving lives" (Weatherhead, 2018).

EXIM's continuing board vacancies are not an accidental oversight. They are the product of a political debate that began, in part, with a multi-million dollar lawsuit and lobbying campaign between Delta Air Lines and the Boeing Company in 2012, and ballooned into a turbulent arena of contestation over the meaning and ideal operation of capitalism. In the lawsuit, Delta Air Lines accused EXIM of unfairly supporting its international airline competitors by providing preferential financing terms on Boeing aircraft. While the federal district court ultimately rejected the claim, a flurry of lobbyists, political pundits, corporate executives, and policy analysts latched onto the suit

as a touchpoint for vociferous debate around "crony capitalism" and "corporate welfare" (Weisman & Lipton, 2017). A loose conglomeration of corporate players like Bechtel, Caterpillar, and General Electric, alongside the U.S. Chamber of Commerce, the National Association of Manufacturers, and myriad small businesses rallied in support of EXIM as a critical tool for maintaining U.S. competitiveness and as contributing to economic growth and prosperity at home and abroad. In opposition, a heterogeneous assortment of strategists, lobbyists, and political action committees including Freedom Partners, the Heritage Foundation, the Club for Growth, and a number of former congressional and White House aides rallied behind Delta to decry "big government" support for corporate interests that distorts the "natural" operation of the free market. The *New York Times* quoted a senior official at Club for Growth that "There is sort of this spontaneous coordination going on, without any explicit coordination. We are all kind of rowing in the same direction and we are all doing it at different speeds."

The picture that emerges from this affair is not one of unified corporate interests or unwavering bureaucratic capture, but one of ideological and rhetorical ruptures, shifting alliances, and unstable actors within rapidly changing political spaces. While it might be tempting to distinguish between two separate factions along the ideological lines of free-market fundamentalism, in practice this distinction is less defined. Rather than two coherent groups, the contestation involves a variety of alternating members and alliances whose actions often contradict their purported ideological stances and who inconsistently identify certain forms of government-private sector interaction as market heterodoxy. The debate continues to play out in editorials, policy briefs, congressional hearings, rallies, and workshops, as widely divergent constituencies across the United States assert contending visions of what "true" capitalism should look like. The impact of this debate on public opinion, policymaking, and jurisprudence, and on the

administration and programming of the many and mixed U.S. Government foreign assistance bureaucracies remains deeply contested and undetermined.

EXIM is one of over twenty agencies and departments that contribute to official U.S. Government foreign assistance efforts; with authorizations exceeding $20 billion in 2014, its contributions prior to the current lapse in authority rivaled that of the U.S. Agency for International Development. As the primary U.S. export finance entity, EXIM plays a significant role in the redistribution of profits from major international development projects: since 2009, its programs have returned over $3.8 billion in profits to the U.S. Treasury and sustained 1.4 billion U.S. jobs by facilitating over $240 billion in U.S. exports (EXIM, 2017). The bank plays an indisputable role in producing the technical knowledge to authorize particular development interventions; in influencing bilateral investment priorities and official development narratives; and in directing resources that reshape material environments and financial flows around the globe. Yet as recent affairs attest, this role is in no way secure or undisputed; nor, I would argue, is the larger project of producing particular forms of technical knowledge to authorize development interventions that unevenly distribute and redirect global financial flows.

Understanding how development bureaucracies function within the capitalist mode of production requires a dynamic, historically contingent, and relational conceptualization of bureaucracy itself. Two dimensions of this set of relations are particularly important: how specific bureaucratic forms and their politics of representation articulate within evolving global flows of knowledge and capital; and how peripatetic and permeable spaces of bureaucratic interaction continually reshape the development project itself. Development bureaucracies are constituted by and operate through diverse actors whose work requires sustained interaction with changing material landscapes and the changing subjectivities of partners, clients, and intended beneficiaries. Contrary to Weber's (1978, p. 199) prognosis that the impersonal character of bureaucratic

authority eventually succeeds in "eliminating from official business love, hatred, and all purely personal, irrational, and emotional elements which escape calculation," close examination of contemporary development bureaucracies reveals fractured logics and shifting, unstable sets relations.

The growing critical literature on the technopolitics of development provides rich, compelling insights into the power relations that shape the production of official development expertise and the variegated social and environmental impacts of international aid programs. The landmark studies of James Ferguson's *The Anti-Politics Machine* and Timothy Mitchell's *Rule of Experts* continue to stand as exemplary examinations of the formation, operation, and impacts of a variety of bureaucratic development programs. Following in this tradition, works like Tania Li's *The Will to Improve,* David Mosse's *Cultivating Development,* and Begum Adalet's *Hotels and Highways* examine the specific forms, flows, and frictions of contemporary development expertise and its material effects. Each of these works attempt to balance attention to the systematic dimensions of development interventions with questions of agency and power throughout diverse development practices, to varying degrees of success. In the following section, I examine evolving conceptualizations of the development apparatus within this literature. The goal of this examination is to call attention the conceptual openings and closures that different framings of bureaucratic knowledge production give rise to.

All of the works examined here draw upon and discuss elements of social theory from Marx, Weber, and Foucault. In particular, the authors discussed here mobilize different scholarly readings of Marx's historical materialism, Weber's writings on bureaucratic rationality, and Foucault's conceptualization of governance. A brief elaboration of these three foundational ideas is warranted in order to contextualize key questions around the construction and operation of power within the technopolitics of development literature. While Marx's writings are concerned

with the social form of modernity that arises through the capitalist mode of production, Weber's writings focus on the cultural forms of modernity that arise from what he theorizes as the peculiar form of Western rationality that engenders bureaucratization. Consequently, while there are clear synergies between their writings, Marx and Weber employ divergent methodological approaches and theoretical frameworks for conceptualizing historical change. For Marx, the differentiation of political and economic spheres and the subsequent invention of "universal" laws is a historical phenomenon that emerges through the reorganization of social relations through the wage labor form. This differentiation then gives rise to particular forms of political and economic abstraction that are projected as universal and timeless in the European tradition of classical political economy. For Weber, it is instead Western rationalization that reorganizes authority through bureaucratic mechanization, giving rise to the modern world order (Sayer, 1991). In Weber's conceptualization of bureaucracy, personal and ethical attachments are superseded by the "valuation of technical expertise" (ibid., p. 137), engendering a highly efficient, unshatterable power relation. For Weber, individual subjectivities, or ways of understanding and locating oneself within a broader social world, are inescapably determined by this form. Foucault's writings take up the question of how individual subjects are produced within the matrices of modern state power, leading to his theorization of governance as the "conduct of conduct." The technopolitics of development literature draws particularly from Foucault's conceptualizations of diffuse, capillary forms of power that operate through a variety of discursive and representational practices.

II. Of Machines and Mosquitoes: Chasing Bureaucratic Logics through the Technopolitics Literature

In the titular passage of his book, Ferguson (1994, p. 256) describes the development apparatus as an "anti-politics machine" that, like an anti-gravity machine capable of suspending

gravity at the flick of a switch, suspends politics from "even the most sensitive political operations." This suspension of politics works in tandem with the simultaneous expansion of bureaucratic power: "alongside the institutional effect of expanding bureaucratic state power is the conceptual or ideological effect of depoliticizing both poverty and the state." This formulation reconstructs a parallel logic at work within the discourse of development he studied: in reducing poverty to a technical problem, it depoliticizes and renders invisible the power relations that produce it, while at the same time expanding bureaucratic intervention under the guise of "a neutral, technical mission to which no one can object." Ferguson is careful to differentiate between these instrument-effects and the intentions of development's "most sincere participants;" nevertheless, he suggests that "it may even be because development projects turn out to have such uses, even if they are in some sense unforeseen, that they continue to attract so much interest and support."

These are points that deserve further elaboration: whose interest and support are thus attracted? And how do those interests intersect or influence the plans and visions of the purportedly sincere participants? These questions then inform the larger question of how Ferguson conceptualizes bureaucratic state power. Ferguson draws partially from Foucault, positing that "The state is neither the source of power, nor simply the projection of the power of an interested subject (ruling group, etc.). Rather than an entity 'holding' or 'exercising' power, it may be more fruitful to think of the state as instead forming a relay or point of coordination and multiplication of power relations" (p. 272). Ferguson argues that in countries like Lesotho, however, expanding state power does not necessarily mean the concentration of social engineering or adherence to a single rationality. Rather, in developing country contexts, the state "grabs onto and loops around existing power relations, not to rationalize or coordinate them, so much as to cinch them all together into a knot" (p. 274). While this exploration partially addresses the questions posed above,

it opens additional lines of potential inquiry. First, what are the historical conditions that gave rise to these divergent forms of bureaucratic power, and what sustains them? Why does Ferguson set up this distinction between the forms of bureaucratic power in "countries like Lesotho" and "the modern West" (p. 274)? Secondly, how does the cinching together of power relations within the bureaucratic state intersect with uneven or competing relations of power at multiple international scales? If bureaucratic power is not a unified or autonomous force, or even a thing capable of holding or exerting force, would it not also change with the "existing power relations" that it coagulates?

Ferguson focuses in on the products and projects of the World Bank and the Canadian International Development Agency as exemplary of a larger development apparatus, and attributes to this apparatus a level of coherence and systematicity that merits further scrutiny. Ferguson argues that the development apparatus draws on a small and "interlocking pool of personnel" and applies a "single, undifferentiated 'development' expertise'" that is "free-floating and untied to any specific context" (p. 258). As development interventions are institutionalized, this expertise is codified into streamlined packages of inputs and standardized sets of discursive practices that involve "reasoning backward from the necessary conclusion" (p. 259). The opening chapter of the book pivots around this conceptualization of bureaucratic logic within the development apparatus; while Ferguson maintains that the expansion of bureaucratic power in countries like Lesotho does not produce a rationalized, centralized logic, it appears that it does in fact do so in the abstract corridors of Western development bureaucracies.

Ferguson argues that institutional context is the key determining factor that defines discursive formation, and consequently, the logics that define development bureaucracies: "An academic analysis is of no use to a 'development' agency unless it provides a place for the agency to plug itself in, unless it provides a charter for the sort of intervention that the agency is set up to

do" (p. 69). This formulation of bureaucratic logic also informs his reading of the Thaba-Tseka project, as an intervention that "can only be understood in the context of a distinctive discursive regime that orders the 'conceptual apparatus' of official thinking and planning about 'development'" (p. 275). Within this discursive regime, bureaucratic logic dictates not only the final knowledge product, but the very ability of project officials to perceive the world around them:

> "[It is] only natural that people who are entrusted with the task of producing acceptable 'development' discourse as a major part of their jobs should develop an ability to accumulate the kind of information that will be of use in constructing that discourse, while ignoring or even resisting the sort that would complicate that task … the same forces which shape 'development' discourse may also indirectly shape the kind of knowledge that is acquired by project officials 'on the ground'" (p. 245).

In reading particular examples as "typical" of bureaucratic form, and in attributing a specific, all-encompassing rationality to that form, this picture of bureaucratic logic bears vestiges of a Weberian sensibility.

This depiction of bureaucratic logic within the development apparatus, distinct from bureaucratic power in countries like Lesotho, opens up a question about the operation of power through discourse across space and time. Ferguson takes great pains to delimit the power of discourse to dictate or determine transformations of the material world; indeed, several chapters of the book precisely illustrate the bouleversement of the discursive development regime. Discourse is but one cog in the larger "machine," and the challenge, for Ferguson, is "to treat these systems of thought and discourse like any other kind of structured social practice, neither dismissing them as ephemeral nor seeking in their products the master plans for those elaborate, half-invisible mechanisms of structural production and reproduction in which they are engaged as component parts" (p. 276). Within this machine, the individual views or actions of specific agents dwindles in significance; indeed "It is necessary to demote intentionality - in both its 'planning' and its 'conspiracy' incarnations - and to insist that the structured discourse of planning and its corresponding field of knowledge are important, but only as part of a larger 'machine'" (p. 275).

This conception of agency, discourse, and structured social practice has garnered distinct criticisms that are discussed further below. Importantly, this vision of development bureaucracy as a free-floating machine that systematically produces a set of knowledge and power relations carries problematic ramifications for conceptualizing causality in a historically grounded manner.

Timothy Mitchell (2002) provides a pivotal step forward on this question of discourse and material transformation in *Rule of Experts.* Situating the invention of the economy as a historically contingent phenomenon, he posits that "The distinction between the material world and its representation is not something we can take as a starting point. It is an opposition that is made in social practice, and the forms of this opposition that we take for granted are both comparatively recent and relatively unstable" (p. 6). This is a powerful volley that beckons the reader to think historically and challenge received modes of ordering and knowing the world. The idea of universally applicable rules and principles around society, space, and nature, Mitchell argues, played a particular role in the radical remaking of lived reality through colonial and postcolonial projects in Egypt.

Through grounded examination of the socio-material transformations ignited by these seemingly "universal" logics, Mitchell denaturalizes the historical outcomes of this (ongoing) process and destabilizes the abstractions that enframe so much theorizing within the social sciences. By carefully tracing specific infrastructure developments, legal reforms, and administrative and scientific interventions, Mitchell demonstrates how the transformation of socio-ecological worlds through colonial and developmental encounters are not the natural result of abstract ideals, but the contingent outcome of deeply contested struggles to remake social relations and the very meaning of space. Mitchell takes great pains to constantly challenge the stability and coherence, not just of the outcomes of these interventions, but of the intentions and logics of their progenitors. He attempts the delicate balance of examining "a series of seemingly global forces—

technology, science, imperial power, and capitalism—and asks how one might understand the working of these different forces in a way that avoids lending to any one of them a logic, energy, and coherence it did not have" (p. 14). This is a crucial shift from Ferguson, and one that I believe merits greater focus and attention. Whereas Ferguson demotes intentionality as secondary to the structured operation of the machine, Mitchell calls into question the existence of any kind of coherent, abstract machine, and invites the reader to reconceptualize agents and logics as unfixed and historically contingent.

Over the course of *Rule of Experts*, the reader encounters complex, hybrid, and often-surprising socio-ecological forms that emerge in interaction with the plans of diverse actors, ranging from the British Colonial Administration to the World Bank, US Agency for International Development (USAID), and engineering and consulting firms like Arthur D. Little and Louis Berger International. What connects these actors is their deployment of the abstract idea of the national economy to enframe development interventions; not, to be clear, a coherent rationality or unified larger project of capitalist transformation. Capitalism does not exist in any abstract sense "out there;" moreover, the "idea that market capitalism has a unitary and universal nature that is not determined by the local or nonmarket elements it encounters" rests on artificial distinctions that are themselves part of "more complex fields of practice that have established the measures, exclusions, and power relations that make possible the market or the economy as forms of technical and material organization" (p. 246). Thus, for Mitchell, "We have to avoid the assumption that capitalism has an 'is' and take more seriously the variations, disruptions, and dislocations that *make each appearance of capitalism*, despite the plans of the reformers, *something different*" (p. 248, emphasis added). In contrast to Ferguson's free-floating machine, Mitchell presents a grounded and contingent conceptualization of technopolitics as a suite of distinct and unintended

outcomes sparked by seemingly global processes that are mediated through diverse actors and landscapes.

Herein lies the challenge: how do we, as critical scholars, examine and reconstruct the systematic effects of universalizing models within development bureaucracies, without attributing to bureaucratic forms a systematic rationality or overarching project? Enframing, writes Mitchell, "is a work of violence as well as theory. And the forces and overflows it must contain are not limited to those of human agency, whose rationality itself contains forms of the irrational and non-human" (p. 299). Capitalism depends on, and is produced through, displacements, reformulations, and "a multitude of seemingly noncapitalist logics" (p. 271). These logics extend into the white halls of the development apparatus and the technocrats themselves, not as automatons of an abstract capitalism, but as human and non-human agents privy to personal desires, prejudices, and mutable perceptions.

Emphasis on this point is warranted, as the distinction between Ferguson and Mitchell's conceptualizations of capitalism and bureaucracy is not always clearly reflected in the growing literature on technopolitics and development. In *The Will to Improve,* Tania Li (2007, p. 10) critiques both Ferguson and Mitchell, arguing that "Although rendering contentious issues technical is a routine practice for experts, I insist that this operation should be seen as a project, not a secure accomplishment. Questions that experts exclude, misrecognize, or attempt to contain do not go away. On this point I diverge from scholars who emphasize the capacity of expert schemes to absorb critique, their effective achievement of depoliticization." This critique fairly draws attention to the labor of depoliticization that is largely left unaddressed in Ferguson's account; however, Mitchell does in fact address this labor in *Rule of Experts,* and specifically calls attention to the repeated failures of expert schemes to achieve depoliticization. Li continues her critique with the argument that Mitchell "describes discursive practices that translate issues of

poverty, landlessness, and hunger into problems of public health to be solved by technical interventions in social relations and hygiene. In his account, experts rule: much of the time, they succeed in disguising their failures and continue to devise new programs with their authority unchallenged" (p. 10). Li offers this critique as a provocation to attend to questions around the subjectivity of development technocrats, yet in doing so, ends up reconstructing precisely the kinds of artificial distinctions that Mitchell set out to critique.

Li categorizes and differentiates her subjects in ways that reify and essentialize an ideal-type construction of "trustees," "programmers," and "beneficiaries," giving rise to sweeping claims such as: "In its structural positioning, trusteeship has changed little from its colonial to its neoliberal iterations" (p. 282). Constrained by the bureaucratic structures they operate within, programmers and trustees are incapable of acknowledging or addressing larger political-economic forces, in Li's formulation. Those forces are then depicted as an omniscient, ahistorical specter: "Like the sovereigns of old, though differently dressed, contemporary transnational corporations, supported by self described liberal regimes, take what they want because they can. They select victims at their convenience and write the rules to legitimate their actions" (p. 17). Capitalism is a historically contingent form that gave rise to specific conceptual abstractions and ways of ordering knowledge of the world; to claim a quasi-conspiratorial coherence or systematicity of corporate machination and bureaucratic capture is not only reductive, but generates the same kind of abstraction that it purports to critique. In particular, this reading fails to heed Mitchell's provocation that each instance and iteration of capitalism is something different.

In *Cultivating Development,* David Mosse (2005) engages ethnographically with the contemporary development apparatus in order to "reinstate the complex agency of actors in development at every level, and to move on from the image of duped perpetrators and victims caught up in a sort of 'spaceage juggernaut on auto-pilot', as well as to revise the false notion of

all-powerful Western development institutions" (p. 6). Echoing Li, Mosse specifically critiques Ferguson's analysis in *The Anti-Politics Machine* as a "new functionalist" sociology that deploys "relentless Foucauldian micro-physics," at the expense of more nuanced understandings of the agency and complexity at work within the social formation of development policy and programs. In a mordant denunciation of this mechanistic view, Mosse writes: "Little wonder that critics such as Ferguson apparently spent so little of their time talking to development workers." While it is true that Ferguson's conceptualization purposefully demotes the intentionality of development bureaucrats, in some ways Mosse's critique misses the larger argument that Ferguson and Mitchell are working towards an understanding of how the construction of abstract economic models operates within the development apparatus, as a dimension of conceptual configuration that emerges within capitalism and engenders hybrid, nonlinear socio-material transformations. Additionally, if we take Mitchell and Ferguson's work seriously, we must also critically examine the idea that "agency" exists in the abstract.

Following in Mitchell's footsteps, Begum Adalet (2018) conceptualizes development theory, and specifically, modernization theory, not as an abstract plane of thought that hovers outside of space, but as evolving sets of practices and processes that are fabricated within and across diverse material landscapes. Focusing on Turkey in the early decades of the Cold War, Adalet shows how modernization theory was crafted and implemented through specific actors, including Dankwart Rustow and Daniel Lerner, and specific projects, including highway expansions and the construction of the Istanbul Hilton. By focusing in on the seemingly discrete arena of infrastructure engineering, Adalet examines how "traveling theories" shaped the rhythms of urban and rural life in a multi-ethnic, post-imperial context, and how those rhythms, in turn, reverberated through evolving design practices that ricochet in cities around the world. Unstable actors like Rustow positioned themselves as key passage points for the implementation of abstract

economic models and social ideals; yet contrary to conceptualizations of modernization theorists as obdurate bureaucrats, Adalet's analysis shows how "even the most poised social scientists were in fact splintered selves and frequently diffident commentators" (p. 53). In doing so, she challenges top-down conceptualizations of expertise and draws attention instead to improvisational spaces and cosmopolitan actors who make and remake the project of development. Adalet destabilizes renditions of the development apparatus as a coherent, stable enterprise, and focuses instead on the ways that development design operates through recombinant practices that scatter, evolve, and reemerge at the many intersections of use.

Adalet further excavates the social layers of knowledge production by drawing specific attention to the performative roles of documentation and the "personal and corporeal interactions" (p. 88) that played an equally important role in fashioning expert knowledge. For example, focusing in on a highway initiative that introduced an influx of U.S. aid, machinery, and experts, Adalet illustrates how American engineers formed understandings of self through contact with their Turkish engineering partners. American engineers involved in technical assistance and machine maintenance employed a metaphor of "getting your hands dirty" as a proxy for self-identification along broader political horizons: in contrast to their "traditional" Turkish engineering counterparts, who they perceived as "disdainful" of manual labor due to their pre-modern social structures and "ignorance" of machine maintenance, the American engineers came to see their own knowledge and familiarity with machinery as a marker of their position as a "tutor of modernization" (p. 114). At the same time, "getting your hands dirty" was increasingly experienced and recorded by American engineers as a metaphor for going out into the field and developing certain forms of local fluency (p. 114). This represents a critical shift in thinking through the technopolitics of development that reframes official reports and technical documents not as inevitable outcomes of the bureaucratic process, but as precarious and contested

representations formed through socially entangled practices and relationships. This shift yields a nuanced, dynamic depiction of individual and collective theorizing and the formation of shifting and unstable actors within the spaces of the development apparatus.

III. Towards Relational Histories of Development Bureaucracy

There is a double challenge in critically examining the production of technocratic knowledge within development bureaucracies: the first challenge resides in accounting for the transformative power of capitalism as a process that reformulates relationships of dependence mediated by things, and thus dramatically reshapes how individuals and communities understand themselves and their relationships to the world around them. The second challenge resides in conceptualizing the development apparatus itself without replicating precisely the universalizing modes of representation that capitalism gives rise to. Scholarship that projects onto the development apparatus an ideal-type construction of bureaucratic rationality not only fabricates a coherence that is highly questionable, but forecloses potential arenas for new intellectual openings to emerge. At the same time, devolving the question of historical processes to contingent outcomes and unfixed actors risks occluding larger analytical insights into the formation and operation of power.

Putting the development apparatus in historical context, Joseph Morgan Hodge (2007) traces consequential shifts in the ways that different types of expertise were valued and cultivated in the waning days of the British colonial administration, and how these shifts then informed the formation of expertise in postcolonial development projects that followed. Rather than projecting unidirectional causality onto structural and knowledge production, Hodge focuses on the discrepancies, discontinuities, and conflicts that reveal the permeabilities and instabilities of the colonial project. He provides grounded analysis of the "process through which the concerns and

visions of practitioners operating on the peripheries of empire were filtered back up to and had an influence on policy debates in London," and at the same time, "how the perspectives of metropolitan officials and experts, imbued with a particular reading of history and agendas emanating from a wider imperial and international research currents, were in turn circulated outward" (p. 4-5). This depiction resonates with Frederick Cooper's (2004) incisive analysis of how specific social theories emerged within colonial bureaucracies, giving rise to universal claims within the social sciences that were then mobilized by diverse political actors to challenge the colonial project itself. Thinking historically thus requires close attention to the dynamic porosity of knowledge production within colonial administrations and postcolonial development bureaucracies.

By criticizing representations of the development apparatus as a rigid bureaucratic form that routinely excises all forms of knowledge that contradict or challenge its calculating rationality, my goal is not to induce unfettered optimism or institutional apologetics about the future of bureaucratic life. Rather, my goal is to challenge critiques of development bureaucracy that rest on amorphous ideas of abstract power, and to call for critiques that concretely locate specific, historical forms of power within the concrete flows and formations of knowledge, capital, and expertise. Finally, by foregrounding the relational, historically contingent forms of development bureaucracy, I hope to draw attention to its generative inconsistencies, frictions, and reconfigurations that may, as yet, find unexpected uses.

Drawing upon the theoretical and methodological approaches of Mitchell and Adalet, I see historically-grounded, materially-focused ethnography as a particularly promising pathway in this pursuit. As the recent tumult surrounding EXIM's status and operations attest, bureaucratic forms are far from unshatterable. Conceptualizing power in our contemporary world thus requires critical engagement with the permutations of and possibilities for bureaucratic life and knowledge

production amidst shifting material and political currents. To that end, Part II presents an experimental auto-ethnography of a U.S. Government-led initiative to transform electric power production in sub-Saharan Africa. This analysis draws attention to the unstable actors and permeable spaces of the initiative as a grounded site for reconceptualizing the arterial and capillary forms of power at work within the material transformations, discursive strategies, and representational practices of contemporary bureaucracies. The ethnographic material is drawn from multiple years of experience working as a federal evaluation expert in partnership with a variety of developers, engineers, and financiers.

PART II: ELECTRIC YEARNINGS

> *We had stayed up all night—my friends and I—beneath mosque lamps hanging from the ceiling. Their brass domes were filigreed, starred like our souls; just as, again like our souls, they were illuminated by the imprisoned brilliance of an electric heart. On the opulent oriental rugs, we had crushed our ancestral lethargy, arguing all the way to the final frontiers of logic and blackening reams of paper with delirious writings.*
>
> —F. T. Marinetti
> The Founding and Manifesto of Futurism, 1909

> *When I speak about Africa's potential, I include in that the enormous talent of our people. As an engineer and the Minister of Energy and Minerals in Uganda, I stand proud to be part of Power Africa's "Women in African Power" — a networking group that brings together students, solar-home-system entrepreneurs, government officials, lawyers and financiers to achieve Power Africa's goals. More importantly, though, we learn from another, do business together, and get things done!*
>
> —The Honourable Eng. Irene Muloni
> Power Africa Annual Report, 2017

I. An Electric Fable

Electricity brings people together. It is the foundation of economic growth, a requirement for participation in the global economy, and a gateway to improved livelihoods for all. Advancing

electricity access is the first step towards building resilient, thriving communities, as it enables individuals to tap into new information networks, markets, and resources. These connections can unlock transformative entrepreneurial potential, opening up a virtuous cycle of investment and growth. The technological breakthroughs of the past decade have brought us to this moment of unprecedented possibility: electronic modernity is now possible for all, built on the bright green foundation of innovation and efficiency. By rationalizing electricity systems, we can ensure the sustainable delivery of power to communities in need and better integrate renewable resources. But we can't do it alone; we must leverage the capital and ingenuity of the private sector in order to meet the challenges of 21st century power demand. And in building these bridges, we can support jobs at home and abroad. It is time to slough off the constraints and lethargy of aging electric infrastructure and bureaucratic stagnation. It is time to build new partnerships and align incentives for growth to unleash the power of the future.

II. Composing Power

A full-color photo of two young women wearing floral, satin shirts stretches across half a page in the 2017 Power Africa Annual Report, under the cheerful title, "Micro-Grids: Expanding Access, Empowering Communities" (Power Africa, 2017, p. 7). The two women are hovering over an electronic device amidst rolling Zambian hills; in the background, we catch glimpses of blue sky, yellow fields, glinting sunlight, and eager onlookers, whose curiosity directs the reader's line of sight to an electronic device. A short text accompanying the photo informs the reader that this scene "offers a glimpse into the future of rural power" (p. 7). Regina Tembo, a "23-year-old single mother and Standard Microgrid manager," has "become the face of energy and empowerment in a community. With no formal technical education beyond her one-day training with Standard Microgrid, Regina manages day-to-day operations, collects cash payments, and

ensures customer satisfaction" (p. 7). The text informs the reader that the project developer, Standard Microgrid, is "an innovative, off-grid utility" that "tailors energy services to individual customers" (p. 7). By investing in communities and employing Regina to build trust with her customers, Standard Microgrid presents "the foundation for a truly replicable and sustainable rural utility model" (p. 7).

In many ways, this scene maps neatly onto the abstract fable of electrification that circulates in contemporary foreign assistance and development communities. It follows the script: a community in need is given the tools to succeed in the modern world; individuals are empowered; connection (redemption?) flows through a decentralized, scalable, technological node; the future is bright and the potential for growth is limitless. The reader enters into the flattened timespace of linear progress, where the logics of development follow a predetermined, predictable path. The reader is not prompted to ask how Regina understands herself; we are told how we should see her: a single mother, with no technical education, who is now empowered, trustworthy, responsible, and connected. The reader is not prompted to ask what else she and her fellow villagers might yearn for, or believe, or see themselves as entitled to; and we are not prompted to ask about the residues of this electricity, what it might take and what it might leave, and whether it might change anything other than Regina's empowerment. The composition of empowerment, in this rendering, cannot question the complex histories of extraction, the uneven and combined flows that remove, distort, redirect, and compel.

A problem with this fable, of course, is where it locates change -- where the sightline directs the reader in the photo: the electronic device. The device becomes the McGuffin, the axis around which modernity turns. Before the arrival of this device from Standard Microgrid, the reader must presume, Regina was lost, but now she is found; now she finds emplacement, finds connection, finds power through an electrostatic charge. Standard Microgrid, a corporate but noncorporeal

force that appears to operate through ether rather than bodies, emits these devices from the abstract geography of those who have arrived at modernity. The electrostatic charge flows eastward and downward, a feat of physics that enables both change and no change: modernity arrives, but power flows only from one side of the equation, and those in need of empowerment remain on the other side. The source of power remains superhuman, disembodied, as Standard Microgrid materializes along a divalent vector that cripples as it empowers, making dependent relationships even as it champions a multicultural, decentralized energy future where women manage change.

The implications for citizenship in this electric modernity are, of course, problematic as well: who deserves to participate in this system? Who earns electricity? Who decides the valencies of these vectors? "Managing" power is rendered as an immanent technological and bureaucratic process of receiving and distributing electrons, a rendering that permits no space to challenge or democratically reconfigure the stratified geographies of where and who produces and orchestrates the electrostatic charge. This, of course, implicates the reader as well: what audience does this text presume, or performatively produce? What kind of electric modernity does this text teach the reader to expect? And why, in particular, does the text presume "African women" as a category in need of "strengthening" and "empowerment"? What and where is the perceived deficiency that prompts this engendering, and how does this gendering of lack discipline the reader's perceptions and expectations?

These critiques, while critical, are nevertheless partial in foregrounding the formal qualities of the text and the ways it (re)produces certain forms of power. For all that the text does, there is much that it does not do, and many ways in which it resists (perhaps even alters?) the Procrustean perimeters of the electronic fable. The text itself is a relational moment, an imperfect refraction of dynamic, human relationships that evolve in nonlinear and contested ways. If the critical reader objects to the teleological representation of development in this text, it follows that teleological

representations of the institutions and cultures that produced this text should also be critiqued. The power of this text, like the power that flows through Regina's mobile electricity management device and into homes on the Lower Zambezi River, is shaped within institutional spaces: within development bureaucracies, international financial institutions, regulatory agencies, and private technology and engineering firms. But these spaces are also permeable and peripatetic, peopled with experts and advisors who iteratively produce and perform the electric fable across charged, interactive environments. And what, in traveling, does not change?

I was once one such advisor. Not long ago, I was an evaluator at the agency that funded the project that now promotes Regina's electricity management business. But I have travelled, and my senses have travelled too. Thus the sketches here are provisional and constructivist, in a Mayakovskyian sense: representations that invite scrutiny and response, renderings fabricated through an entangled, embodied, itinerant lens. As I interrogate my own perceptions of these institutional ecologies, I do the treacherous work of constructing conduits between memories amidst shifting force fields of allegiance and cognition.

III. Electrostatics: the Study of Charges at Rest

What first caught my eye was the tie. The muted colors of the fabric against the unremarkable gray suit did not beckon attention; thus it startled me to realize that the otherwise nondescript geometric pattern was in fact made up of tiny, flying elephants. The wearer's sartorial protest to the absurdity of the present assembly. The wearer was, in fact, a banker; one of a few who dotted the room. But the bulk of those gathered were not bankers; they were bureaucrats and technocrats, "do-gooders" in the systematized scaffolding of bilateral foreign assistance. Allegiances were subtly reflected in the costumes of those assembled; the more sleek and streamlined the suit, the more likely that individual worked primarily with investment bankers or

the fabled private sector. The appearance of unusual earrings or scarves, in contrast, were often worn as an emblem of time spent in the field, the metonymic "boots on the ground" in the war on lack.

"This is about win-win outcomes," the conductor of the assembly was saying; "this is about power projects that benefit Africa and the American taxpayer." This rhetorical flourish is not accidental, nor is it without consequences. In this stratigraphic phrasing, underdevelopment is a space without actors, and the pinnacle of modernity is an individual who pays taxes as if they were an investment portfolio whose sole purpose is to accrue (and return) capital gains. "Win-win" is a spectacular feat of discursive power that prioritizes the reproduction of relationships of unequal exchange, while representing the space of interaction as an uncharged, non-zero-sum terrain. The privileged position of the American taxpayer in this Rostowian lexicon of foreign assistance is the product of a particular history, an evolving and interactive set of forces. Forces that assemble and dissemble; forces that convene the individuals in this room, with their myriad histories, yearnings, grudges; forces that fabricate the space of this endeavor, that condition but do not determine its possibilities and permutations.

The conductor's immediate task is to "coordinate" interagency efforts around a new U.S. Government-led initiative to "power" Africa; an opening, or perhaps a rechanneling, of capital flows that actively reshapes the frontiers and borderlands of accumulation. The difficulty of this alignment is palpable; the assembly shifts uncomfortably. "We need to harmonize our instruments," the conductor says, "in order to present a suite of services to our clients and bring more projects to financial close." Around the room, mundane ambitions, aspirations, and grievances find expression in scowls, fidgets, and yawns. The bankers look unfazed; no amount of harmonization will compensate for uncreditworthy offtakers or missing guarantees. Seasoned bureaucrats check their watches; by now the exciting-new-unprecedented-high-level- initiative-

announced-with-no-planning is standard fare; time moves on. More eager attendees raise their hands and try to catch the conductor's eye: this is the perfect opportunity to shine the spotlight on the need for clean cookstoves, isn't it? The conductor continues: "We need an orchestrated pipeline to expedite projects and ensure the seamless movement from idea to project preparation to groundbreaking." I wonder to myself what musical pipelines populate the conductor's imagination; I think of the pipelines I have seen in western Ukraine, protruding from the gray earth and returning unidentifiable substances to it through rusted joints and fissures. A different kind of groundbreaking, I suppose.

I look out the window at the Potomac River, whose name was taken, like the land it flows over, from the Patawomeck people; a people who persevere in claiming the rights to that name, and for whom formal recognition from the State of Virginia came in 2010. The name also graces Washington DC's electricity distribution company, the Potomac Electric Power Company, whose electrons flow underground from upriver gas-fired power plants through the walls and into the lights overhead. Under this fluorescent glow, new names are christened: for each project, land must be titled, terms named, components licensed, and conditions denominated; and the projects together must be sanctioned, synchronized, and initiated into this new collective platform. What names will they take? What names will they give?

IV. Electrodynamics: the Study of Charges in Motion

The Mukungwa River flows in many senses. It winds through the misty hills of western Rwanda, powering the dense latticework of roots and veins that reach deep into the rust-colored soil. It flows through these roots into the leaves and shoots that nourish the few remaining silverback gorillas. It mingles with the waterways that flow into the shade-grown arabica plants, first introduced by Belgian colonizers to draw capital out of the soil, and now cultivated for the

prized cherry fruits that are plucked, dried, roasted, shipped, and eventually brewed in conical glass spheres on white countertops, powering a different kind of flow.

I am standing with two Americans, a developer and an engineer, as we look out over the river cascading down the hill. The force of this cascade can power a 2.6 megawatt hydropower plant; the technical equivalent, the engineer tells me, of 2,600 American households. Part of the river would be diverted into a channel, either an open canal that would require the labor of 300 hands to construct, or a pipeline that would be fabricated in Pennsylvania and shipped across the Atlantic, around the cape and up to Kenya, and then loaded onto freight trains and then trucks and assembled on the rich Musanze soil. Through the channel, the water would flow through a turbine, whose design, architecture, and manufacture would originate in California. The water flowing through this turbine would generate an electric current that would then flow through privately developed distribution lines into the nationally operated transmission system. There, the electrons would merge with the multitude of other electrons in the complex choreography of aligning generation with distribution.

I, myself, am part of a wave of bodies. I am here to evaluate the viability of this proposed project and its potential to perform a particular kind of legibility to a particular audience. This legibility is both a kind of projection and a kind of fictive translation, a multidirectional flow of information that hastens or congeals the flow of certain forms of capital. The project is one of multiple sites that have emerged onto the pipelines and balance sheets of developers and investors under the auspices of the new initiative.

As I set out from Kigali to Musanze, a larger caravan barrels past, ferrying the leader of the new initiative to see the dissolved methane at Lake Kivu. This dissolved methane is a geologically unusual remnant of the region's volcanic history; an abundant potential source of fuel

with a violent history of spontaneous explosions that plague the fishing villages along the shore. In this new era of possibility, even exploding methane can become an asset.

Waves of consultants, bankers, developers and engineers begin to fan out over the countryside, a network of rivulets and tributaries reshaping the ground through term sheets and licensing agreements. They begin the work of project preparation, the sculpting and fabrication of unmapped, uncodified space into forms recognizable to the investor's eye. As I study the contours of the Mukungwa, a cadre of advisors at parallel sites take measurements of temperatures, velocities, and concentrations.

Cognizant of this fleet (and fleeting) tide, I amplify my stream of questions to draw out data that could hasten implementation, hasten the flow of power. What is the timeline for pipeline fabrication? How does the developer intend to finance construction and operation? How well will the feed-in-tariff awarded with the concession align with recovering initial capital outlays? What arrangements have been negotiated with the off-taker? How do the technical and financial models account for intermittency during the dry season? As I dutifully transcribe this data into my notebook, I look out over the verdant hillside and picture the trees uprooted, the channels cut deep into the red earth, the cement and steel and wires that will soon transform this space; and I perceive the edges of a chasm between my data and the multiple senses of this place, a chasm I have no instruments to navigate.

We drive back from the site over uncut roads, whose rocky, rutted surface send shocks through the industrial-grade tires and into our bones. The engineer points out the small clinic and library that will be electrified through this project. She describes the training sessions she is undertaking to develop a team of local technicians to operate the plant. Music to a bureaucrat's ear; yet I can't shake this feeling of unease that seems to permeate the air, like the residue of the mist rising above the leafy hills. I struggle to discern whether this feeling is perceived or projected:

whether I am superimposing the horrific visions that shone through the high definition plasma displays of my childhood onto the organic compounds that are now before me, or whether there is something more-than sensory that interrupts my senses here. I know that this developer and this engineer both feel a particular kind of connectivity to these hills; they have told me as much. The developer has lived here for many years, and speaks poetically about the healing that is taking place, about the vitality and flourishing that he hopes this project will enable. I believe the sincerity of his words, but I wonder about the entanglements of history and coloniality in this place, and I wonder whether we fully know what we are doing.

Back in Kigali, I walk past the Hôtel des Mille Collines to rejoin the exploding methane caravan for drinks. They are gathered on a dark wooden veranda, set about with small lamps to supplement the dissipating sunlight of the day. The restaurant is deserted, eerily quiet but for this raucous group of bankers, engineers, and aid workers. I meet a handful of consultants who are working on projects in Tanzania, Kenya, South Africa, Ghana, Mozambique, and Zambia. We trade data, details about the opportunities opening up under this new initiative: I share general requirements for funding consideration, they share specific project ideas that could be scaled and replicated, and recommendations on specific standards and regulations that should be harmonized in order to facilitate that scaling. I think about one such "harmonizing" that just succeeded in Tanzania: an effort to improve the credit-worthiness of the national offtaker by aligning tariffs with revenue requirements; a harmonization that quintupled the cost of electricity for consumers overnight. I retreat from the consultants to a corner of the bar where a colleague from Kenya is standing. I tell him about my muddied thoughts from the day; he tells me, quietly, that we should be more careful here; that the hideous forces we lock behind the name history are very much alive and alert, waiting just below the surface, like the methane in Lake Kivu.

V. Interoperability

You can't just walk into the Power Africa headquarters office on the outskirts of Pretoria; in fact, you can't walk there at all. There are no buses, trains, or bike paths that lead to it; the only transport option is a private car, which must be registered, along with your person, before entry is permitted. The office stands amidst a nondescript office park with neatly manicured lawns and fences, visually interchangeable with the dismal commercial parks that litter the suburban fringes of the Mid-Atlantic. I make my way through the gate and into the queue for a series of screenings and security checks, the customary greeting process within most diplomatic infrastructures. Once cleared and registered, I walk into the building and am enveloped by ambient lighting that illuminates woven wall tapestries in rich orange and red hues; a subtler interior aesthetic than one usually finds within emissarial architectures. I meet with a diverse group of South Africans and Americans regarding the new initiative's monitoring and evaluation framework. We discuss the challenges of interoperability, the informational barriers that inhibit the possibilities for connection between grid infrastructures and between partners in the initiative.

As I drive back towards Johannesburg, towards the luxurious enclaves of Sandton and Rosebank, I look out over the miles of electric security fences and surveillance infrastructure. Interoperability, I wonder to myself; will it ever be more than aspirational? I glimpse the edge of the Orlando Power Station, whose concrete cooling towers begin to inch up over the horizon. The coal-fired power plant was erected in Soweto in the early years of Apartheid; for decades, the power it generated was evacuated to white neighborhoods, leaving only toxic residues for Soweto's nearby inhabitants. After the fall of Apartheid, the plant was decommissioned, and the cooling towers were transformed into one of the world's largest murals, depicting a smiling Nelson Mandela, scenes of township life, and a multi-story First National Bank logo. The murals project

many things, depending on where the viewer stands amongst the fissures etched into the topography of this city.

Thinking about these fissures, my thoughts turn to my own city, Washington, DC, and the informational flows and barriers, the multiple faces and forces that poster its streets each day. Just as a bureaucrat or engineer could design an interoperability framework from the headquarters office in Pretoria without ever stepping foot in Soweto, so too can that same bureaucrat or engineer coordinate and harmonize aid efforts from the neoclassical edifices of Federal Triangle without ever stepping foot into Anacostia or Trinidad. How might those plans change, if they did? Would they be forced to confront the caverns and faultlines within their own theories of modernization? But then again, I think to myself, even the faultlines of my city are rapidly changing, dematerializing and rematerializing before my eyes in an uneven cadence that shapes the movement of my own feet. I had moved to the district fresh from a year of living in the West Bank, with four dollars to my name; I lived on the other side, worked days and nights in unglamorous jobs, making do alongside folks who never saw themselves inside all those neoclassical white buildings, gridded like celestial beings in L'Enfant's cosmic plan. I wasn't aware at that time that I was at the cusp of another wave of bodies; wasn't cognizant of the power of my own presence, or the electrodynamic charge of displacement that accompanied my own interoperability.

VI. Alternating Currents

Tania Li writes in *The Will to Improve* that programmers (bureaucrats, development workers, financiers) are "under pressure to program better," which she takes to be at odds with making programming itself an object of analysis (Li, 2007, p. 2). These pressures are elaborated through her reading of Foucault's conceptualization of governance as the "conduct of conduct;" so enmeshed are these programmers as functionaries of statecraft that they are incapable of

extracting themselves to a distance necessary for critique. Li allots herself a certain generosity of spirit towards these programmers, confessing that "Rather than assume a hidden agenda, I take seriously the proposition that the will to improve can be taken at its word" (p. 9). Yet this formulation appears to imply that programmers' capacity for critical thought *cannot* be taken at its word. Li argues that subjects formed within complex matrices of multiple powers "encounter inconsistencies that provide grist for critical insight;" yet this subjectivity only applies to intended program beneficiaries, not to programmers (p. 27). In contrast, programmers routinely "screen out refractory processes to circumscribe an area of intervention" (p. 2), and their "claim to expertise depends on their capacity to diagnose problems in ways that match the kinds of solution that fall within their repertoire" (p. 7). Li implies that programmers' proximity to, and complicity with, the Foucauldian paradigm of governance makes their critique impossible.

For me, Li's argument raises important questions about who is positioned to think, what conditions their thinking, and whether the disciplining contours of official development spaces eliminate the possibility of critical reflection from within. I agree with Li that as academics, we must attend to the particular ways that language is constricted and constricts within the official development project. But I think we, as academics and non-academics, and even as programmers, must push against static, totalizing conceptualizations of the official development paradigm. We must probe the vectors and valencies that continually reshape the contours of this space, and the apertures through which so much flows.

These questions have everything to do with my own treacherous attempts to make sense of my experiences within the official spaces of development. While embedded within this space, I witnessed the violence of its disembedding logic at work, taking the complexly charged specificity of the world as it is and flattening it into the sanitized, totalizing language of technical intervention. But I also witnessed moments of profoundly altering interaction and exchange, and saw that

inconsistency was never eradicated fully, that refractory processes could not be entirely screened out (or kept in), and that the repertoire itself did change. I watched the electric fable spark strange, electric yearnings, and I, too, came to believe in pieces of the poetic project: that a non-extractive future is possible; that communities can and do thrive; that an electrostatic charge carries with it possibilities that its progenitors may not even know.

Frederick Cooper argues that the twin pillars of official development, modernization theory and development economics, emerged from and responded to "the confrontation of colonial regimes and social and political movements from the late 1930s to the 1940s," and that these new social theories "emerged first not in the academy but in colonial bureaucracies themselves" (Cooper, 2004, p. 10). Illuminated in this way, the totalizing project of Li's contemporary programmers can be seen not as a spatio-temporal constant but as a historically contingent, radical change in repertoire; a product of the inconsistencies experienced by their colonial bureaucratic predecessors. Critically, Cooper emphasizes the unexpected ways in which the language of these new social theories was adapted and mobilized by diverse political actors to make new claims, articulate aspirations, and challenge the colonial project itself (p. 33). "However critical one is of the pretensions of social theory in the era of modernization," writes Cooper, "it contained within its divergent strands a sense of possibility of a world in which neither race nor dependent political status constrained the imagination … Looking at a moment of possibility in the era of decolonization can serve to remind us of the importance of looking for new openings, in both political and scholarly practice" (p. 33).

VII. Electric Heart

I left DC with partial, intimate knowledge of the polyvectorial, unstable flows of bodies and capital that radically alter spaces of being, spaces of becoming. I do not have any illusions

about the profound difficulties, the profound costs of interacting with these vectors. But I believe that finding fissures in the facade of official development and foregrounding its relational, co-constitutive facets robs the paradigm of the future it would performatively produce. Regina Tembo's future is entangled with the evolution of this institutional ecology, and so is mine. As a former electric bureaucrat, I was struck by one particular absence in the text that accompanied her photo: on-grid connectivity. Regina's program is an off-grid, distributed energy system, one that is technically self-sufficient and disconnected from the national transmission system. In the culture of electricity development, distributed energy is a bit of a unicorn: a transformative system of mythic proportions that does not quite exist in the wild, but that everyone is seeking. Micro-grids are the purest distillation of the idea of distributed energy, in the form of a self-contained unit that perfectly balances generation and distribution, and that in theory could withstand an electric apocalypse. Within the U.S., a handful of micro-grids are in existence, primarily to support critical infrastructures like hospitals and military bases. Many of these existing systems, however, are designed for use only in times of emergency, as the high cost of decentralized generation (typically diesel or gas-fired power) can't compete with centralized, utility-scale generation.

The contemporary moment is seen by many electrical engineers as the cusp of an energy regime change: we may be nearing the point when low-carbon micro-grids become economically viable, if the cost of renewable generation continues to decline, distribution technologies continue to improve, and the problem of storage is solved. In theory, this could mean the end of coal-fired power and the end of oil and gas. Perhaps this is why Tesla is one of a handful of companies, including Standard Microgrid, racing to solve the storage problem and perfect micro-grid systems. In theory, economically viable micro-grids could also entail a total reordering of the electricity grid as we currently know it, as energy pricing, operation, and governance would devolve to a micro-local level, and instead of national energy systems, we would see seas of little sovereign

energy islands deciding their futures in technical isolation. For all the incessant talk of "disruption" in Silicon Valley, this is one arena where that designation may actually be appropriate.

So why, one might ask, is the US Government supporting an experimental micro-grid project in rural Zambia? And why, moreover, did Power Africa announce three months ago a new public-private partnership with Mastercard called the Smart Communities Coalition, which will bring experimental micro-grids to refugee camps? The leader of Power Africa unironically issued the following Orwellian edict in response to this question: "the impetus behind Power Africa's participation in the coalition was that we wanted to give micro-grid companies a controlled environment to test their business models. Refugee settlements can facilitate that because populations can be more densely populated. Companies can tweak models on what's working, and what's not, and then move from a controlled environment to the broader market" (Brent, 2018).

As someone who has lived and worked in refugee camps, it is difficult for me to convey how disturbing I find this statement, this vision of the future, to be. And yet, here it is, blackening reams of paper, out of the mouth of someone I recently toiled alongside. And in a way, it perfectly encapsulates this strange moment of uncertainty we are all living in. The motives of these new futurists are questionable, at best, but they themselves may not know the full extent of the transformation they unleash. And these futurists are not one, but multiple, with complex entanglements and contending allegiances. I still maintain hope that Cooper's historical lens might also hold true for this contemporary moment: that the poetics of electric futurity might travel in unexpected ways, engendering new claims, aspirations, and ways of seeing that might challenge the very paradigm that produced them. And as an ex-functionary in this futurist dream, I am writing into that space.

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